

Patent claims

1. A drive device for advancing an advancing element
5 (2; 33) relative to a housing (1; 30) over a total
advancing distance (G), comprising a spring device
(4) which advances in an advancing direction on a
counter-element (7; 39) and on the advancing
10 element (2; 33) which is movable relative to the
counter-element (7; 39), characterized by a
tensioning device with a tensioning element (3;
39) for tensioning the spring device (4), wherein
a predetermined distance (A) between the counter-
15 element (39) and the advancing element (33) or
between the counter-element (7) and the tensioning
element (3) that engages on the advancing element
(2) is able to be set according to the advance of
the advancing element (2; 33) by a partial
20 advancing distance that is shorter than the total
advancing distance (G).
2. The drive device as claimed in the preceding
claim, characterized in that the spring device is
formed by a helical spring (4) which is tensioned
25 between the counter-element (7; 39) and the
advancing element (2; 33) or the tensioning
element (3; 39).
3. The drive device as claimed in one of the
30 preceding claims, characterized in that the
predetermined distance (A) is smaller or greater
than the length of the untensioned spring device
(4).
- 35 4. The drive device as claimed in one of the
preceding claims, characterized in that the
tensioning element (3; 39) for tensioning the
spring device (4) is movable relative to the

housing (1; 30) and the advancing element (2; 33) in the direction of the counter-element (7; 39).

5. The drive device as claimed in one of the preceding claims, characterized in that the tensioning element (3; 39) can be moved in the direction of the counter-element (7) or of the advancing element (33) by a rotary device with at least one rotary element (7; 37) rotatable relative to the housing (1; 30).
6. The drive device as claimed in one of the preceding claims, characterized in that the tensioning element (3; 39) has a thread, and the advancing element (2) or the rotary element (37) has a mating thread which interacts with the thread of the tensioning element (3; 37).
7. The drive device as claimed in one of the preceding claims, characterized in that a striker device with an actuating element (11; 48) and with a pusher element (2, 20; 49) is provided, the pusher element (2, 20; 49) being able to be pushed in the advancing direction by actuation of the actuating element (11; 48).
8. The drive device as claimed in one of the preceding claims, characterized in that the pusher element (2) is formed by the advancing element.
9. The drive device as claimed in claim 8, characterized in that the actuating element (48) protrudes from one end of the housing (30) and has a continuation (49) which protrudes from the opposite end of the housing (30).
10. The drive device as claimed in one of the preceding claims, characterized in that a locking device (43, 44) is provided for releasably fixing

the advancing element (33) relative to the housing (30) upon tensioning of the tensioning device (4).

11. The drive device as claimed in one of the
5 preceding claims, characterized in that the rotary element (7) is fixed relative to the housing (1) parallel to the advancing direction and forms the counter-element, and, by rotation of the rotary element (7), the tensioning element (3) is movable
10 relative to the advancing element (2) counter to the advancing direction.
12. The drive device as claimed in one of claims 1 through 12, characterized in that the tensioning
15 element (39) is secured against rotation relative to the housing (30) and forms the counter-element, and, by rotation of the rotary element (37), the tensioning element (39) can be moved in the advancing direction relative to the advancing
20 element (33).
13. A method for discharging a fluid product from a container (16) through an outlet (17) in the container (16), in which method a plunger (18)
25 arranged remote from the outlet (17) inside the container (16) is advanced in the direction of the outlet (17) by a drive device with an advancing element (2; 33) and with a spring device (4), characterized in that, after the advance of the
30 advancing element (2; 33) by a partial advancing distance which is shorter than the total advancing distance (G), the spring device (4) is tensioned by a tensioning device (3; 39).
- 35 14. The method as claimed in the preceding claim, characterized in that a drive device as claimed in one of claims 1 through 13 is used to drive the plunger (18), and the plunger (18) is advanced by the advancing element (2; 33) of the drive device.

15. The method as claimed in one of claims 14 and 15, characterized in that, upon tensioning of the spring device (4), a predetermined tensioning force in the spring device (4) is generated by setting a predetermined distance (A) between the counter-element (7; 39) and the advancing element (2; 33) or the tensioning element (3; 39).
16. The method as claimed in one of claims 14 through 16, characterized in that a predetermined pressure in the container (16) is generated, and the spring device (4) is tensioned when the pressure drops by a certain amount.
17. The method as claimed in one of claims 14 through 17, characterized in that the drive device can be tensioned by the tensioning device during an advance of the advancing element (2; 33).
18. The method as claimed in one of claims 14 through 18, characterized in that the plunger (18), at the start of the advance, is pushed in the advancing direction by a striker device.